

Appl. No. : 10/658,307  
Filed : Sept. 9, 2003

## REMARKS

### Claim Rejections - 35 U.S.C. § 103(a)

Claims 1 and 13 have been rejected under 35 U.S.C. § 103 as being unpatentable over Jahng et al., Synthesis and Characterization of Hole-transport Materials in Polysiloxane, *Mat. Cryst. Liq. Cryst.*, vol. 377, pg. 329-332 ("Jahng") in view of Japanese Patent 10-333195 ("Hisaya"), U.S. Patent No. 2,277,697 ("Koblitz") and Applicant's purported admission. Applicants respectfully traverse this rejection.

There is no motivation to combine references when a reference teaches away from its combination. "References cannot be combined where reference teaches away from their combination." M.P.E.P. § 2145(X)(D)(2). The Examiner rejected Claims 1 and 13 based on the combination of Jahng in view of Hisaya, Koblitz and Applicant's purported admission. In this case, Wright teaches away from their combination; therefore, the Examiner's rejection under 35 U.S.C. § 103 was erroneous.

The Examiner's dismissal of Applicants' arguments because "the  $T_g$  of the polymer is not at issue as the  $T_g$  is not claimed" was improper. The Federal Circuit has stated that 35 U.S.C. § 103 requires that "an invention be considered 'as a whole'". *Schenck v. Nortron Corp.*, 713 F.3d 782 (Fed. Cir. 1983) (copy enclosed). For example, in *Schenck*, the court looked at the invention in its entirety (including the inventor's elimination of the need for damping), and not just at the features recited in the claims. *Id.* at 785. The court focused on the prior art's design that introduced damping and the belief held by those skilled in the art believed that damping was required in hard-bearing balancers. *Id.* The court held the requirements of 35 U.S.C. § 103 were met "because that insight [elimination of the need for damping] was contrary to the understanding and expectations of the art, the structure effectuating it would not have been obvious to those skilled in the art." *Id.* Accordingly, the law, as shown in *Schenck*, requires the Examiner to consider the disclosures of the cited references as a whole, including aspects not cited in the claims such as the  $T_g$  of the polymer.

Moreover, as in *Schenck*, the Applicants have demonstrated that the prior art teaches away from the claimed composition, which includes a chromophore on a polysiloxane backbone. Wright provides evidence that those skilled in the art understand that the  $T_g$ 's of polysiloxanes that contain chromophores are often undesirably low, leading to various problems. In addition,

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Wright notes that the polysiloxane 3 depicted in Scheme 1 “was found to have a **T<sub>g</sub> of 25°C, which is actually too low to be used** with the concentrations of **chromophore** normally employed in photorefractive polymer composites. . . . This **low T<sub>g</sub> leads to fast phase separation** of the **chromophores** in the polymer host **and dielectric breakdown** at small electric field strengths,” *see* Wright at p. 4733, first column, second paragraph (emphasis added). As discussed above, there is no motivation to combine when one of the references teaches away from their combination. Absent a motivation to combine, there is no *prima facie* case of obviousness. *See* M.P.E.P. § 2143. Accordingly, Applicants respectfully request withdrawal of this rejection.

In the alternative, the Examiner has taken the position that the rejection under 35 U.S.C. § 103 is proper because, “had a T<sub>g</sub> been claimed, one of ordinary skill in the art at the time the invention was made would have expected the T<sub>g</sub> of the Jahng, Hisaya, Koblitiz and applicant’s admission composition would inherently be the same as claimed and avoid the low T<sub>g</sub> issue mentioned by Wright.” *See* Advisory Action at 2. However, this position is contrary to established law because “[O]bviousness cannot be predicated on what is not known at the time an invention is made, even if the inherency of a certain feature is later established.” M.P.E.P. § 2141.02(V) (citing *In re Rijckaert*, 9 F.2d 1531, 28 U.S.P.Q.2d 1955 (Fed. Cir. 1993)).

In *In re Spormann*, the inventor had invented a process for the production of solid alkali metal sulfite in which the alkali sulfite could be obtained without the concurrent formation of substantial amounts of alkali metals. 363 F.2d 444, 445 (C.C.P.A. 1966) (copy enclosed). The Board affirmed the Examiner’s § 103 rejection of Claims 7 and 8 based on U.S. Patent No. 1,091,429 (“Friedrich et al.”) in view of secondary references. In rejecting the claims, the Board stated “[t]hough not mentioned by Friedrich et al., this [the minimizing of sulfate production] seems to be merely an additional characteristic inherent in their process.” *Id.* at 447.

On appeal, the court overturned the Board’s decision, stating:

As we pointed out in *In re Adams*, 356 F.2d 998 [], the inherency of an advantage and its obviousness are entirely different questions. That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown.

*Id.* at 448. The Federal Circuit has continued to uphold this position. *See In re Newell*, 891 F.2d 899 (Fed. Cir. 1989) (The court rejected the Solicitor’s argument that it is inherent that a belt

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drive will provide greater surface contact and thus better power transfer without supporting teachings in the prior art) (copy enclosed).

As in *Spormann* and *Newell*, the Examiner, in this case, has improperly based his rejection on the belief that one of ordinary skill in the art at the invention was made would have expected that the  $T_g$  of Jahng, Hisaya, Koblitz and Applicants' purported admission composition would inherently be the same as claimed and avoid the low  $T_g$  issue mentioned by Wright. Nowhere in the prior art has the Examiner indicated any support for this position. Without support, the Examiner's position is contrary to the established law. Accordingly, the Applicants respectfully request withdrawal of this rejection.

### **CONCLUSION**

In view of foregoing Remarks, Applicants respectfully submit that this application is in condition for allowance, early notification of which would be appreciated. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 2/6/2006

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section includes the costs of transcripts of pre-trial and post-trial hearings, as well as transcripts of the trial itself. There is no basis for Chore-Time's effort to distinguish a transcript of oral argument on a motion for summary judgment from that of a trial.

Nor is there a basis for overturning the court's finding that the transcript was necessarily obtained for use in the case. See, e.g., *Sperry Rand Corp. v. A-T-O*, 58 F.R.D. 132 (E.D.Va.1973); *Kaiser Industries v. McLouth Steel Corp.*, 50 F.R.D. 5 (E.D. Mich.1970).

The award of costs for translation of a German patent found "relevant to [Cumberland's] contentions" was appropriate under 28 U.S.C. § 1920(6).

Award of copying costs was similarly appropriate under § 1920(4) and did not constitute an abuse of discretion.

Chore-Time's assertions that the depositions were not necessarily obtained for use in the case and were not referred to in the court's opinion are unavailing. The court found that the depositions "were reasonably necessary to discover possible avenues of attack upon . . . [Chore-Time's] patent" and observed that Chore-Time "indicates no particular depositions which were not necessary in light of its claims." That a deposition was not referred to in the court's opinion is immaterial. See *Wahl v. Carrier Mfg. Co.*, 511 F.2d 209 (7th Cir.1975) (charges for transcripts of depositions reasonably necessary for use in case, even though not used at trial, are recoverable as costs under 28 U.S.C. § 1920).

#### CONCLUSION

The grant of summary judgment and award of costs to Cumberland are affirmed.

**AFFIRMED.**



**CARL SCHENCK, A.G., Appellee,**

**v.**

**NORTRON CORPORATION, Appellant.**

**Appeal No. 83-675.**

United States Court of Appeals,  
Federal Circuit.

July 21, 1983.

The United States District Court for the Middle District of Tennessee, 570 F. Supp. 810, entered judgment finding valid a patent for wheel balancer and finding claims of such patent infringed, and manufacturer of infringing machine appealed. The Court of Appeals, Markey, Circuit Judge, held that: (1) structure effectuating elimination of damping would not have been obvious to those skilled in the art, and (2) there was no basis for determination of error in finding of infringement.

Affirmed.

#### 1. Patents ⇐1

If patentee or licensee enjoys widespread sales, such is but an example of incentive-useful arts promoting element in patent system.

#### 2. Patents ⇐1, 206

Patents and licenses are exemplifications of property rights.

#### 3. Patents ⇐89

Participation in United States patent system, as patentees and as licensees, is available to citizens and noncitizens alike.

#### 4. Patents ⇐324.1

On appeal from decision in patent infringement action, counsel's argument and interpretations of prior art cannot supplant requirement for presentation of testimony from qualified witnesses and exhibits to trial court; absent showing on appeal that findings were clearly erroneous in light of record made at trial or that conclusions based on such findings were incorrect as

matter of law, judgment appealed from must be affirmed.

#### 5. Patents ⇐ 16(1)

In patent infringement action, argument seeking to limit focus of inquiry to structural difference from prior art and then to show that such difference alone would have been obvious was not proper under statute requiring that an invention be considered "as a whole;" emphasis on nonobviousness is one of inquiry, not quality. 35 U.S.C.A. § 103.

#### 6. Patents ⇐ 16.22

Claims one, two and five of patent No. 3,182,511 relating to machine for sensing vibration resulting from imbalance in wheels and other rotating elements were valid since insight eliminating need for damping was contrary to understanding and expectations of the art and structure effectuating such elimination therefore would not have been obvious to those skilled in the art. 35 U.S.C.A. § 103.

#### 7. Patents ⇐ 233

Claims one, two, and five of patent No. 3,182,511 relating to machine for sensing vibration resulting from imbalance in wheels and other rotating elements were infringed.

#### 8. Patents ⇐ 185

Patent right is but right to exclude others and, under statute, is property. 35 U.S.C.A. § 261.

#### 9. Monopolies ⇐ 12(15)

That property right represented by patent, like other property rights, may be used in scheme violative of antitrust laws creates no "conflict" between laws establishing any of such property rights and antitrust laws. 35 U.S.C.A. § 261.

#### 10. Patents ⇐ 1

Valid patent gives public what it did not earlier have.

#### 11. Patents ⇐ 168(2)

Reference to patent as "the patent monopoly" or description of patent as "exception to the general rule against monopolies" is irrelevant when considering patent ques-

tions, including question of file wrapper estoppel.

#### 12. Patents ⇐ 165(1)

Trial judge in patent validity and infringement action properly read claims as would one skilled in the art.

#### 13. Patents ⇐ 165(3)

Modification of disclosure of patent unwarranted by disclosure of reference is improper.

Sheldon W. Witcoff, Chicago, Ill., argued for appellant. With him on the brief was Ronald E. Larson, Chicago, Ill., of counsel.

Robert B. Russell, Boston, Mass., argued for appellee. With him on the brief were David A. Tucker, Boston, Mass., and Thomas H. Peebles, III, Nashville, Tenn., of counsel.

Before MARKEY, Chief Judge, and FRIEDMAN and NIES, Circuit Judges.

MARKEY, Chief Judge.

Appeal from a judgment of the District Court for the Middle District of Tennessee holding U.S. Patent No. 3,182,511 ('511 patent) valid and finding claims 1, 2, and 5 of that patent infringed by Nortron Corporation (Nortron). We affirm.

#### BACKGROUND

The inventors are Federn, Geiss, and Seibert, who assigned the '511 patent to Carl Schenck, A.G. (Schenck). As assignee, Schenck sued Nortron, R.H. Scales Co. (Scales), and Myers Tire Supply Co. (Myers). The case has been stayed respecting Scales and Myers. Nortron manufactures the 7402 wheel balancer accused as an infringement.

Nortron was selling a wheel balancer in competition with Schenck as early as 1973. That product did not infringe the '511 patent, which issued in 1965 and expired in 1982. In 1979, Nortron shifted to the model 7402 balancer.

[1-3] Nortron's brief characterizes Schenck as a "German monopolist." That denigration, whether inserted in a vain hope of prejudicing the court or otherwise, has no support in the present record. Disclosure of an invention found to have revolutionized an industry is but a classic example of the ideal working of the patent system. If a patentee or licensee enjoys widespread sales, that too is but an example of the incentive-useful arts promoting element in the patent system. Patents and licenses are exemplifications of property rights. Further, and happily, participation in the U.S. patent system, as patentees and as licensees, is available to citizens and non-citizens alike.

The '511 patent discloses and claims a machine for sensing vibration resulting from an imbalance in what are here called "wheels" (tires, wheels, turbine rotors, and other rotating elements). Claim 1 is representative:

1. A vibratory testing machine, comprising a rigidly fixed base structure 13, a vibratory workpiece-holding structure 14 having means for accommodating a workpiece 10 and defining a given measuring direction M, supporting means 15 joining said structures and having a plurality of supporting rod members 15 forming a parallelogram linkage yieldable in said measuring direction M and stiff in planes transverse to said direction M (i.e., in direction A) to limit vibration of said holding structure 14 to said measuring direction M, said vibratory holding structure 14 and said base structure 13 as well as said supporting means 15 forming jointly a single integral and gaplessly continuous piece.

Judge Nixon entered a comprehensive unpublished Memorandum constituting his Findings and Conclusions, accompanied by an Order finding in favor of Schenck and setting a date (now stayed) for hearing on damages. In that Memorandum, Judge Nixon: described the physical phenomena involved in wheel balancing; set forth the long-term employment of soft-bearing balancer machines, their disadvantages, and

their replacement by the hard-bearing machines of the invention; noted the belief of practitioners before the invention was made that resonance damping was required in hard-bearing machines, and the present inventor's contrary teaching that damping should be avoided; listed basic principles of patent law; held irrelevant the assertion that the invention had not been used in automotive balancers sold by Schenck in the United States; characterized as *passé* the defense that making a support structure in one piece "does not rise to the standard of invention", in view of recognition in *Graham v. John Deere Co.*, 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966), that the standard is nonobviousness; surveyed the evidence supporting nonobviousness, particularly the abandonment of soft-bearing for hard-bearing machines; rejected the defense of no causal relationship between the invention and that industry shift; dismissed the argument that "a consolidation of elements can never rise to the level of patentable invention"; rejected the defense of fraud for failure of the drawing to disclose more than one support structure to the Patent and Trademark Office; rejected as not prior art an earlier patent of Federn; rejected the assertion of no infringement based on model 7402's allowance of axial movement, interpreting the claims as contemplating limited motion in the measuring direction and significantly more limited (i.e., less) motion in the axial direction; stated that he was interpreting the claims in the "manner of those skilled in the art," citing *Autogiro Co. of America v. U.S.*, 384 F.2d 391, 155 U.S.P.Q. 697, (Ct.Cl.1967); quoted the description in a Nortron patent application of the model 7402 machine; found that description persuasive of the similarity of both parties' mechanisms; and rejected Nortron's tests as proof of noninfringement.

#### ISSUES

Did Judge Nixon err in: (1) holding the '511 patent valid; or (2) finding claims 1, 2, and 5 infringed by Nortron's model 7402 wheel balancing machine?

## OPINION

[4] Nortron argues the present appeal on substantially a *de novo* basis. Counsel's arguments and interpretations of prior art cannot, however, supplant the requirement for presentation of testimony from qualified witnesses and exhibits to the trial court. Our review is on the record made at trial. Absent a showing on appeal that findings were clearly erroneous in light of that record, or that conclusions based on those findings were incorrect as a matter of law, the judgment appealed from must be affirmed.

Nortron says it bases the present appeal on three "issues". The first and third "issues" relate to infringement, the second to validity. We consider the latter first.

## A. Validity

Nortron points to recognition in the '511 patent of a prior support structure in which legs and cross-pieces are bolted together with notch-and-tooth engaging faces. From that it argues that the present invention was merely the forming of that structure in one piece, a step, Nortron says, that would have been obvious to those skilled in the art at the time the invention was made.<sup>1</sup>

The unchallenged testimony of record establishes that the legs of the notch-and-tooth design are broad leaf springs. Thus, far from eliminating damping (as Nortron asserts) the notch-and-tooth design introduces damping, as was pointed out to and accepted by the examiner during prosecution of the application that resulted in the '511 patent.

The uncontested testimony of record further establishes that those skilled in the art believed that damping was required in hard-bearing balancers. Judge Nixon's finding that "many practitioners introduced damping into their measuring devices in order to suppress resonance" is amply sup-

ported in the record. That finding is not only not shown on appeal to have been clearly erroneous, it is not mentioned by appellant.

Nortron has pointed to nothing of record that would suggest the replacement of a structure formed of bolted leaf springs and cross bars with a single, unitary, gapless (and thus rigid) structure. On the contrary, the record reflects that that step would remove the flexibility present and thought to be necessary in the former.

[5, 6] In its argument that the invention here is but making integral what had earlier been made in four bolted pieces, Nortron seeks to limit the focus of inquiry to a structural difference from the prior art and then to show that that difference *alone* would have been obvious. That effort is not proper under the statute, which requires that an invention be considered "as a whole," 35 U.S.C. § 103. As Judge Nixon recognized, "the emphasis on nonobviousness is one of inquiry, not quality". *Graham v. John Deere Co.*, 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966). The inquiry here establishes that the present invention includes the inventor's elimination of the need for damping. Because that insight was contrary to the understanding and expectations of the art, the structure effectuating it would not have been obvious to those skilled in the art. *United States v. Adams*, 383 U.S. 39, 86 S.Ct. 708, 15 L.Ed.2d 572 (1966).

Indeed, hard-bearing balancers had been known since the early 1920's, but had not been successful because of the art-perceived need for mechanisms to dampen resonance. That the *means* of eliminating the need for damping was the one-piece gapless support structure described in the claims detracts in no manner from the contribution to the art made by the inventor. The present invention was a key to the unlocking of a pre-ac-

1. In its main brief, Nortron added as part of the prior art associated with the notch-and-tooth design, the knowledge that damping was undesirable. Schenck in its brief pointed out that that unpublished knowledge was limited to Schenck in Germany and thus could not be

"prior art" under 35 U.S.C. § 102(a). In its reply brief, Nortron rewrote its second issue to substitute "axial yieldability" for "damping". The substitution may be made in the text of this opinion without change in the reasoning or result.

cepted barrier and to the resurrection of hard-bearing balancers, which then replaced widely-used soft-bearing balancers. Nortron was and is at liberty to employ, as it once did, a support formed of separate elements bolted together. That it felt impelled to abandon earlier devices and to employ the unitary structure of the invention is evidence of the latter's value.

As Judge Nixon noted, the *only* direct evidence on the obviousness issue was that of Professor Muster, who described the invention and its relation to the notch-and-tooth design as set forth here. Nortron's second "issue" is thus unavailing, for Judge Nixon's conclusion that the inventions set forth in claims 1, 2 and 5 of the '511 patent would have been nonobvious is fully supported in the record and free of error.<sup>2</sup>

#### B. *Infringement I*

[7-13] Nortron asserts as its first "issue" that there is a file wrapper estoppel, ignored by Judge Nixon, under which the claims cannot cover a balancer like its model 7402 that permits vibrations in an axial direction of as much as  $\frac{1}{4}$  those in the measuring direction.<sup>3</sup> The assertion rests on the claim language, "supporting means . . . yieldable in said measuring direction and stiff in planes transverse to said direction to limit vibration of said holding structure to said measuring direction," and a statement in the patent specification, "It is an object of our invention to devise a vibratory testing machine which more reliably avoids the above-mentioned undesired

yieldability in directions transverse to the vibratory mounted workpiece holding or journalling structure."

In Nortron's main brief, it insisted that the claims must be read as though they "necessarily excluded vibration in the axial direction." Reminded by Schenck's brief of the fact established in the record, i.e., that all skilled in the art have always known that exclusion of vibration in the axial direction is impossible, Nortron's reply brief no longer says the claims exclude vibration in the axial direction, but that they do not encompass machines with axial vibrations of more than an "appreciable or measurable extent."

As part of its file wrapper argument concerning axial vibration, Nortron necessarily says Schenck wrote the claims narrowly in respect of the amount of permissible axial vibration to distinguish them from the prior art. Nortron's difficulty is that the claim language it relies on was not inserted to avoid prior art. On the contrary, the prosecution history makes plain that the argument for patentability focused on the support structure clearly present in the accused machine.

Judge Nixon did not ignore the argument surrounding the cited claim language. On the contrary, he discussed that argument thoroughly and properly rejected it. As presented at trial, the argument was the unsupportable one initially stated here, i.e., that the claims envisage total absence of

2. Nortron asserts error in the finding of commercial success, pointing to testimony that Schenck's *automotive* wheel balancers sold in the United States would not infringe the '511 patent. Nortron ignores the testimony that Schenck's U.S. sales of balancers for other uses would infringe the '511 patent, and that the unitary support structure is employed in Schenck *automotive* balancers, their noninfringement arising from the absence of other elements in the claims of the '511 patent.

3. Nortron begins its file wrapper estoppel argument with "Patents are an exception to the general rule against monopolies. . . ." A patent, under the statute, is property. 35 U.S.C. § 261. Nowhere in any statute is a patent described as a monopoly. The patent right is but the right to exclude others, the very defini-

tion of "property." That the property right represented by a patent, like other property rights, may be used in a scheme violative of antitrust laws creates no "conflict" between laws establishing any of those property rights and the antitrust laws. The antitrust laws, enacted long after the original patent laws, deal with appropriation of what should belong to others. A valid patent gives the public what it did not earlier have. Patents are valid or invalid under the statute, 35 U.S.C. It is but an obfuscation to refer to a patent as "the patent monopoly" or to describe a patent as an "exception to the general rule against monopolies." That description, moreover, is irrelevant when considering patent questions, including the question of estoppel predicated on prosecution history.



axial vibration. Further, the uncontested expert testimony was that the object of the invention was to eliminate signals caused by axial or transverse vibration, not all axial vibration itself. The inventor employs long rods to avoid an influence of axial vibration on the output of his transducers. Nortron employs a bridge circuit to cancel out the influence of axial vibration in the 7402 model. Thus, both machines limit the output of the detection device to the signal from vibration in the measuring direction.

There is simply no basis in the record for the argument based on counsel's claim interpretation and counsel's description of model 7402's operation. The testimony at trial of Schenck's expert Muster, and the description by Nortron's model 7402 designer Curchod, fully support Judge Nixon's interpretation of the claims as permitting "a limited pedestal motion in the measuring direction and a significantly more limited pedestal motion in the axial direction." Judge Nixon properly read the claims as would one skilled in the art, *Autogiro Co.*, *supra*, and Nortron has shown no error in that action on this record. Hence, Nortron's first "issue" reflects no basis for a determination of error in the finding of infringement in this case.

#### C. Infringement II

Nortron correctly points out that there must be a consistent interpretation of the claims, *Smith v. Hall*, 301 U.S. 216, 57 S.Ct. 711, 81 L.Ed. 1049 (1937), then asserts as its third "issue" that Judge Nixon read the "rigidly fixed base structure" language of the claims (in finding infringement) in a manner that makes that limitation readable on the prior art Rouy patent No. 2,329,654 ('654 patent).

The limitation "rigidly fixed base structure" is read by Schenck on a plate of model 7402 to which the bearing support structures are welded. The plate is in turn bolted to a pedestal. In an effort to restrict the claim limitation to a massive base with feet bolted to short foundations, Nortron reads into the claims the description of the entire machine shown in the drawings

of the '511 patent. The language of the limitation itself is, however, clearly readable on the bolted plate of model 7402. That language is not ambiguous, and nothing in the prior art of record or in the prosecution history requires that it be read only in the light of the specification or restricted to the embodiment shown in the drawings and described in the specification of the '511 patent.

If "rigidly fixed base structure" be read as encompassing its plate, says Nortron, it is equally readable on certain elements of the Rouy '654 prior art patent. That argument, however, turns on a conjectural modification of the disclosure of the '654 patent. Modification unwarranted by the disclosure of a reference is improper. See *In re Imperato*, 486 F.2d 585, 587, 179 USPQ 730, 732 (CCPA 1973); *In re Bergel*, 292 F.2d 955, 130 USPQ 206, (CCPA 1961). In its modification, Nortron labels the outer end portions of what Rouy calls "flexible connections" as "base plates" and adds numerical designations to them. There is no justification for that modification. Rouy did not regard or describe those end portions as base plates; nor did he describe them in any manner; nor did he disclose their dimension in the direction of his shaft axis. The Rouy '654 patent, disclosing a support structure with gaps and numerous other differences from the structure claimed in the '511 patent, has little if any relevance, as was apparently recognized by the examiner in the Patent and Trademark Office who cited the '654 patent, but did not apply it to the claims.

The interpretation of the present claims by Judge Nixon was consistent throughout his consideration of the validity issue, the prior art, and the infringement issue. There is, accordingly, no basis in Nortron's third "issue" for a determination of error in the finding of infringement in this case.

#### CONCLUSION

Nortron having failed to establish error in the record, the judgment appealed from must be affirmed.

AFFIRMED.

53 CCPA

Application of Walter SPORMANN and  
Joachim Heinke.

Patent Appeal No. 7599.

United States Court of Customs  
and Patent Appeals.

July 21, 1966.

Proceeding on patent application. The Patent Office Board of Appeals, Serial No. 56,353, affirmed rejection of claims, and applicant appealed. The Court of Customs and Patent Appeals, Rich, Acting C. J., held that claims of application for patent on process of producing alkali metal sulfites were not obvious.

Reversed.

#### 1. Patents $\S$ 18

That which may be inherent is not necessarily known, and obviousness cannot be predicated on what is unknown. 35 U.S.C.A.  $\S$  103.

#### 2. Patents $\S$ 101(4)

Claims must be interpreted in light of specifications.

#### 3. Patents $\S$ 18

Claims 7 and 8 of application for patent on process of producing alkali metal sulfites were not obvious. 35 U.S.C.A.  $\S$  103.

Herbert B. Keil, Matthew C. Thompson, Chicago, Ill., for appellants.

Clarence W. Moore, Washington, D. C. (George C. Roeming, Washington, D. C., of counsel), for Commissioner of Patents.

\* United States Senior District Judge for the Eastern District of Pennsylvania, designated to participate in place of Chief Judge WORLEY, pursuant to provisions of Section 294(d), Title 28, United States Code.

Before RICH, Acting Chief Judge, MARTIN, SMITH and ALMOND, Judges, and Judge WILLIAM H. KIRKPATRICK.\*

RICH, Acting Chief Judge.

This appeal is from the unanimous decision of the Patent Office Board of Appeals,<sup>1</sup> petition for reconsideration denied, affirming the examiner's rejection of process claims 7 and 8 in application serial No. 56,353, filed September 16, 1960, for "Production of Solid Alkali Sulfites." No claim has been allowed.

In essence, the invention is a process of producing alkali metal *sulfites* from alkali metal hydroxides and/or carbonates by spraying the latter, in aqueous solution, into a dry gas containing sulfur dioxide, the temperature and humidity of the gas being such as to immediately vaporize the water to the end that very little *sulfate* is produced. The sulfate results from oxidation of the sulfite but this apparently does not occur to any great extent if the sulfite is dry immediately upon its production. Sulfate is particularly likely to form when the treating gas contains a large amount of oxygen as do waste gases which it is desired to use for economic reasons.

Claim 7 reads (breakdown ours):

7. A process for the production of solid alkali metal sulfite which comprises:

passing a finally dispersed aqueous solution of an alkali metal compound selected from the group consisting of sodium hydroxide, sodium carbonate, sodium bicarbonate, potassium hydroxide potassium carbonate, potassium bicarbonate and mixtures thereof,

into a substantially dry gas containing sulfur dioxide,

maintaining the temperature of said dry gas at a level such that the water

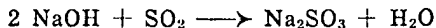
1. Consisting of Examiner-in-Chief Duncombe and Acting Examiners-in-Chief Behrens and Wyman, the latter writing the opinion.

introduced with the solution and formed by the reaction of the alkali metal and the sulfur dioxide is immediately vaporized,

and thereafter separating from the gas the solid alkali metal sulfite which is formed by the reaction of the sulfur dioxide and the alkali metal compound.

Claim 8 differs from claim 7 in two respects. (1) The finely dispersed solution of alkali metal compound is passed "into an upwardly directed stream" of the dry gas containing sulfur dioxide and (2) the temperature of the dry gas is maintained "between about 20 and about 150° C."

A typical reaction, producing sodium sulfite from sodium hydroxide and sulfur dioxide, is



According to appellants' brief (emphasis ours):

It has long been known, of course, that sulfur dioxide (SO<sub>2</sub>) can be reacted with alkali metal hydroxides or carbonates to produce sodium sulfite. Ordinarily, a solution of sodium hydroxide or the like is interacted with SO<sub>2</sub> gas. *There is one major drawback to the use of the known processes. The formed sulfite tends to oxidize, especially in the presence of heavy metal ions. Sodium sulfite, for example, oxidizes to form sodium sulfate (Na<sub>2</sub>SO<sub>4</sub>). To prevent oxidation of the sulfite it was considered necessary to exclude atmospheric oxygen by using a concentrated sulfur dioxide gas containing relatively minor amounts of free oxygen or by carrying out the reaction between the sulfur dioxide and the alkali metal hydroxide in an inert atmosphere. The need for concentrated SO<sub>2</sub> gases made it impossible to use roaster or waste gases containing sulfur dioxide which are formed in great quantities during the production of sulfuric acid. The protective measure described above is difficult to carry out especially in a commercial process. It has also been suggested that*

the oxidation of alkali sulfite be suppressed by adding substances to the solutions which are capable of binding heavy metal ions. In such processes, however, the substances which are added to bind the metal ions become impurities which contaminate the alkali sulfite.

A method was found by appellant-applicants whereby alkali sulfite can be obtained from alkali hydroxide or alkali carbonate and sulfur dioxide *without the concurrent formation of substantial amounts of alkali sulfate.* The process is carried out successfully without the addition of materials which contaminate the sulfite. In the process, a finely dispersed aqueous solution of an alkali metal hydroxide or carbonate or bicarbonate is passed (sprayed) into a substantially dry gas containing sulfur dioxide. *The temperature and relative humidity of the gas are maintained at such levels that the water introduced with the solution and formed by the reaction of the alkali metal and the sulfur dioxide is immediately vaporized.* Thereafter, solid alkali metal sulfite is separated from the gas. *The sulfite is formed instantly in the dry form and no longer is exposed to the action of oxygen which is present in the gas.* In the subject process, unlike the prior art processes, it is possible to use waste gases as a source of SO<sub>2</sub>, which gases contain large quantities of oxygen (as much as 50 parts of oxygen per part of SO<sub>2</sub>).

In the process, therefore, a finely divided liquid and a gas are passed into the reaction zone and *solid sodium sulfite particles and water vapor leave the reaction vessel.* The exact point wherein the transition from liquid to solid and vapor occurs is not precisely known. What is known is that the water must be vaporized in the reaction zone leaving only vapor and solid alkali metal sulfite.

Much of this discussion also appears in appellants' specification.

The examiner finally rejected the claims as unpatentable "over any of" the following patents:

|                     |           |               |
|---------------------|-----------|---------------|
| Haywood             | 2,210,405 | Aug. 6, 1940  |
| Aydelotte<br>et al. | 1,982,241 | Nov. 27, 1934 |
| Friedrich<br>et al. | 1,091,429 | Mar. 24, 1914 |
| Strickler           | 1,023,179 | Apr. 16, 1912 |

In his Answer, the examiner also said, "Appellants' process is considered nothing more than the application of this teaching of Friedrich et al. to a spray process such as is described in Aydelotte et al. Such a combination does not meet the provisions for patentability set forth in 35 U.S.C. 103."

The board said: "As recognized by the Examiner, the rejection on Strickler appears to be cumulative but we will sustain the rejection as being one on Friedrich et al. in view of Aydelotte et al. or Haywood."

Friedrich et al. disclose a process for making sodium sulfites wherein a raw material such as sodium hydroxide or sodium carbonate is passed in a *solid, powdered* form through a horizontal rotating drum having radial plates or helical screw threads which cause the solid raw material to be turned and transported through the vessel. Sulfur dioxide gas is passed in countercurrent flow through the material within the drum. The solid, crushed raw material contains "a definite quantity of chemically combined or hygroscopic water" throughout the entire process, the amount of which "is so calculated in each individual case, that the heat of the reaction occurring on the absorption of the sulfurous acid gas [SO<sub>2</sub>] will partially or completely evaporate the water, so that the finished product issuing from the apparatus will exhibit the required degree of moisture or dryness." The amount of moisture is apparently selected so that the final product will be free flowing yet dustless. The invention is described as an improvement over, and is contrasted with, the then

known (1910) "wet" process by eliminating the equipment, power, and related expenses necessary for separation of product from solution.

Aydelotte et al. disclose a process for reducing the sodium hydroxide (caustic soda) content of *solutions* containing a mixture of sodium hydroxide and potassium hydroxide (caustic potash). The patentees' objective is to produce caustic soda-caustic potash solution mixtures of certain ratios which they use in making synthetic indigo, the sodium sulfite being a mere by-product. The mixture, in solution, is treated with waste gas containing sulfur dioxide, "either by bubbling the gas through the liquid, countercurrent spraying of the liquid into the gas, or other means until a test portion when evaporated to about 50° Bé., cooled to about 46° C. and filtered shows that the ratio of mixed caustic has been changed to 40% of caustic soda and 60% of caustic potash." The whole batch of solution is then evaporated to about 50° Bé. and cooled to 40° C. Whereupon sodium sulfite precipitates and is separated by filtration or decantation. What remains is, of course, still a solution. According to the patentees, the "crude separated sodium sulfite, containing small amounts of potassium sulfite, occluded caustic, and other impurities may, for some purposes, be used without purification, or it may be partly purified by washing, depending on what purpose it is to be used for."

Haywood discloses a method for producing *calcium* sulfite, especially as filler for paper, whereby a suspension of milk of lime, contained in an "absorber" tank, is whipped up as a fine mist by an agitator into an overhead gas containing from 7% to 20% SO<sub>2</sub>. The essentially water-insoluble calcium sulfite product falls back into the suspension. It is stated that the calcium sulfite suspension can then be pumped to a paper machine. Alternatively, the patent states:

If the material is to be shipped, it should first be dewatered to reduce it to a thick paste or a dry powder. However, if it is to be used near the source

of manufacture in a watery suspension, it may be used directly \* \* \*.

As to temperatures in the "absorber" where the reaction between liquid and gas occurs, the specification says:

This temperature *under ordinary conditions will usually rise to about 70° C.* If desired the combustion gases [from a sulfur burner where SO<sub>2</sub> is generated for the process] \* \* \* may be cooled to a certain extent by water introduced into the tower \* \*. This, however is not essential and may be dispensed with, if desired. *There is no objection to introducing the gases into the absorber at a temperature of between 400° and 550° C.* [Emphasis ours.]

Strickler discloses a process for producing sodium sulfites, an object of which is to prevent the formation of sulfates through oxidation, which is appellants' principal object. However, in the Strickler process, SO<sub>2</sub> gas is passed into a *suspension* of sodium carbonate in a saturated solution of sodium sulfite. A temperature of about 49° C. (120° F.) is disclosed.

Comparing appellants' process with the prior art, clearly the basic chemical reaction embodied in their process is old, as their specification acknowledges. Aydelotte et al. would also suggest to one skilled in the art bringing about this reaction by countercurrent spraying of a liquid containing caustic soda into a gas containing sulfur dioxide. The issue therefore is: would it be obvious to one of ordinary skill in this art to conduct the old reaction by such spraying under *all* the conditions set out in the claims and obtain appellants' results, i. e., would the invention as a whole have been obvious?

The board said:

Taking cognizance of the fact that spray drying is an old expedient for obtaining a solute in dry form, we fail to see that it is unobvious to modify the method taught by Friedrich et al. so that a solution of sodium carbonate, for instance, is passed in fine droplet form through the gaseous current com-

prising sulfur dioxide instead of the finely powdered carbonate of Friedrich et al., particularly as Aydelotte et al. and Haywood do show, at least, that it is old to spray an alkaline hydroxide or carbonate solution through sulfur dioxide gas to obtain the corresponding sulfite.

Both appellants and Friedrich et al. obtain a dry sulfite and in such a simultaneous drying and chemical reaction process it is thought to be a *mere difference in degree whether the water is present in such an amount as to dissolve the carbonate or is merely present as adhering water* (Friedrich et al., page 2, lines 42 to 49). We note that Friedrich et al. only require that a sufficient amount of water be present to permit the chemical reaction to take place. Those familiar with spray drying know that dry products can be obtained even though a large amount of water may be present with the material to be dried.

Appellant urges that his product does not have much sulfate as a contaminant. *Though not mentioned by Friedrich et al., this seems to be merely an additional characteristic inherent in their process*, In re Arnold et al., 50 CCPA 1166, 1963 C.D. 400, 794 O.G. 502, 315 F.(2d) 951, 137 USPQ 330. [Emphasis ours.]

The board's reference to "spray drying" appears to have been injected as something of which it was taking judicial notice, without having been mentioned in any reference of record. While Aydelotte et al. and Haywood both disclose spraying of some sort, neither spray dries. While we have heard of spray drying, it is not a technique of which we would feel free to take judicial notice. We are of the opinion that if the Patent Office wishes to rely on what "Those familiar with spray drying would know," it must produce some reference showing what such knowledge consists of. So far as we can see, appellants do spray and their sprayed solution is dried. We are unable to find, however, any indication in the references that such a step would

have the effect which appellants sought and found, namely, a reduction of the undesirable oxidation of sulfite to sulfate in an old reaction tending to produce sulfate when the reactant gas contained large amounts of oxygen.

[1] The board apparently thought that the minimizing of sulfate production would be *inherent* in the process of Friedrich et al. However, this is no support for a rejection for various reasons. Friedrich et al. make no mention of it, as the board conceded. Their process is not appellants' process. It is a reaction between solid, powdered material and gas, the only water present being chemically combined water and hygroscopic water; appellants react sprayed solution and gas. As we pointed out in *In re Adams*, 356 F.2d 998, 53 CCPA —, the inherency of an advantage and its obviousness are entirely different questions. That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown.

The result of appellants' process is said to be a product low in sulfate content, notwithstanding the use of waste gas containing relatively large amounts of oxygen, an asserted advantage not challenged by the Patent Office. So far as the disclosures of the references are concerned, we have found nothing to suggest it.

Strickler appears to be the only reference which deals with the problem of preventing the formation of sulfate during sulfite production but appears to solve the problem only by avoiding its cause. Sulfur dioxide gas is passed through a solution rather than waste gas containing oxygen and sulfur dioxide. Appellants' brief states, without refutation by the Patent Office, that "It is well known, of course, that this [Strickler] process would only be successful where atmospheric oxygen is excluded and where heavy metal ions are not present." The Patent Office treats this reference as "cumulative" and places little reliance on it.

The solicitor devotes most of his short brief to a discussion of Haywood's process which is different in several respects. The argument attempts to show how the claims can almost be read on this reference, distinguishing only—but admittedly—in their references to the use of a "solution" and in naming the alkali metal reactants. Haywood is interested in producing *calcium* sulfite as a paper filler. It is not an alkali metal compound and therefore outside the claims. It is produced from a suspension, not a solution, of lime (CaO) or limestone (calcium carbonate, CaCO<sub>3</sub>) brought into contact with a gas containing SO<sub>2</sub>. No effort at all is made to dry the product or the gas. In fact, the conditions are such that as fast as the sulfite is formed it falls back into the suspension whence came the raw material. The gas treatment takes place in an "absorber" which is a vessel with liquid in the bottom having an agitator which revolves in the liquid and splashes it upwardly from its surface where it is contacted by the gas. Since the gas is exhausted through a stack the Patent Office would have us treat this as an "upwardly directed stream" within claim 8. We will not do so as this would distort the clear meaning of the claim when read in the light of the specification. Besides, gas flow in the absorbers is horizontal. Next, reliance is placed on Haywood's temperature disclosures. Here an obvious attempt is made to drag from its context something to meet claim limitations without regard to the true import of the claims. The argument is that *if* Haywood's gas is at 400° or 550° C., the gas would necessarily be dry gas and the water would necessarily vaporize immediately, as appellants' claims contemplate. But Haywood *teaches* that normally his gas will be about 70° C. This would not necessarily be dry, contrary to what is also contended, being below the boiling point of water. As to the higher temperatures mentioned, all that the patent says is that "There is no objection to introducing the gases into the absorber at a temperature of between 400° and 550°

Cite as 383 F.2d 449 (1966)

C." What effect this would have by way of vaporizing water is speculative and would depend on how much gas flows into the absorber how fast, how cold the suspension is, contact time between the mist thrown up by the agitator and the gas at whatever temperature it may have reached, heat loss from the absorber, etc. What goes on in the absorbers is a decidedly wet process having nothing to do with drying. What goes into them is aqueous suspension and that is also what comes out of them.

[2] Finally, the solicitor argues on the basis of Haywood's optional and later dehydration of his sulfite suspension to produce a shippable product that the immediate vaporizing and separation steps of the claims are met because it makes no difference that Haywood's supposedly dried particles fall back into liquid if *ultimately* they are *again* dried and separated. We think this is not taking the claims to mean what they say when interpreted as they must be, in the light of the specification. Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502, 37 S.Ct. 416, 61 L.Ed. 871. The solicitor's use of Haywood amounts to reading things into the reference that are not there and reading things out of the claims that are there. When this has been done, concededly the claims still do not read on Haywood and since this patent does not teach anything about immediate drying after reaction it does not make the invention obvious when added to Friedrich et al. who teach nothing about reacting solution with gas.

[3] Our view is that one faced with the problem of how to use oxygen-containing waste gases in the production of alkali metal sulfites without undue production of sulfate would receive no suggestion from the references to spray a solution of the alkali metal compound into the gas stream under such conditions of temperature and relative humidity as to cause all water present to be immediately vaporized. This is the claimed invention and in our opinion its basic un-

derlying concept is not to be found in the prior art of record.

The rejection of claims 7 and 8 is reversed.

Reversed.



53 CCPA

Application of Leo G. GLASSER, Robert J. Kanzler and Daniel J. Troy.

Patent Appeal No. 7509.

United States Court of Customs and Patent Appeals.

July 21, 1966.

Proceeding on patent application. The Board of Appeals, Serial No. 641,167, affirmed examiner's rejection of the five remaining claims, and applicants appealed. The Court of Customs and Patent Appeals, Worley, Chief Judge, held that the five claims of application for patent on method and apparatus of photometric analysis were patentable over prior art.

Reversed.

#### 1. Patents $\Rightarrow$ 18

Concession of applicants for patent on method and apparatus for photometric analysis that their logarithmic type measuring circuit per se was old did not establish that it would be obvious to substitute it for measuring circuit which had been set forth in prior patent and which clearly measured an indicated different function of the beam intensities from logarithm of applicant's ratio.

#### 2. Patents $\Rightarrow$ 66(1.20, 1.24)

Five claims of application for patent on method and apparatus of photometric analysis were patentable over prior art.

Cite as 891 F.2d 899 (Fed. Cir. 1989)

*Sacilor, Acieries et Laminoirs de Lorraine v. United States*, 815 F.2d 1488, 1490 (Fed.Cir.), cert. denied, 484 U.S. 924, 108 S.Ct. 285, 98 L.Ed.2d 245 (1987). The appellants fail, for two separate reasons, to meet the prudential test required for standing. Firstly, they do not fall within the zone of interest sought to be protected by Art. 1, § 9, cl. 3 of the Constitution. See *Association of Data Processing Serv. Organizations v. Camp*, 397 U.S. 150, 153, 90 S.Ct. 827, 829-30, 25 L.Ed.2d 184 (1970). Secondly, the appellants are not the "proper proponents of the particular legal rights on which they base their suit." *Warth v. Seldin*, 422 U.S. 490, 509-10, 95 S.Ct. 2197, 2210-11, 45 L.Ed.2d 343 (1975); *Tileston v. Ullman*, 318 U.S. 44, 46, 63 S.Ct. 493, 494, 87 L.Ed. 603 (1943); see also *Singleton v. Wulff*, 428 U.S. 106, 112, 96 S.Ct. 2868, 2873, 49 L.Ed.2d 826 (1976).

Art. 1, § 9, cl. 3 pertains only to the individuals or class of individuals who are actually identified by the alleged Bill of Attainder, in this case TMC. The appellants are not identified by section 2443 and do not have standing to assert the alleged constitutional rights of TMC which has intentionally remained a non-party to this action.



In re Chester W. NEWELL.

No. 89-1332.

United States Court of Appeals,  
Federal Circuit.

Dec. 12, 1989.

The Patent and Trademark Office  
Board of Patent Appeals and Interferences

affirmed an examiner's rejection of a patent application for a tape drive system. Applicant appealed. The Court of Appeals, Pauline Newman, Circuit Judge, held that the claims could not be rejected on the ground of obviousness.

Reversed.

**Patents** ¶16.29

Claims for tape drive system for compatible data cartridge or cassette could not be rejected by examiner on ground of obviousness; elements of prior art were not simply physically combined, and device's indirect power transfer from power belt through capstan to drive belt was not shown or fairly suggested in prior art. 35 U.S.C.A. § 103.

Thomas Schneck, Law Offices of Thomas Schneck, San Jose, Cal., argued for appellant.

John Dewhirst, Associate Sol., Office of the Solicitor, Arlington, Va., argued for appellee. With him on the brief was Fred E. McKelvey, Sol.

Before MARKEY, Chief Judge,  
BALDWIN, Senior Circuit Judge, and  
NEWMAN, Circuit Judge.

PAULINE NEWMAN, Circuit Judge.

The decision of the United States Patent and Trademark Office Board of Patent Appeals and Interferences (Board) dated September 28, 1988, affirming the examiner's rejection of claims 16-41, all of the claims of patent application Serial No. 754,673 of Chester W. Newell, under 35 U.S.C. § 103, is reversed.

*The Invention*

The invention is a tape drive system for an American National Standard Institute (ANSI) compatible data cartridge or cassette. Claim 16 is representative:



16. For tape data cartridges of the type having a pair of tape rolls mounted in reversible tape supply and takeup relation with a tape path there-between, a capstan and first belt guides spaced apart from the tape rolls, but disposed in said tape path, with a first belt having an inside surface trained about the first belt guides and the capstan and having an outside surface in contact with the tape for providing motive power to the tape, a drive comprising,

second belt guides spaced proximate to the capstan position and a driven power wheel independently mounted of the mounting for said cartridge tape rolls, and

a second belt having an inside surface trained about the second belt guides and the driven power wheel and having an outside surface contacting the capstan over an angular portion of the capstan surface, said second belt frictionally engaging said capstan whereby the second belt indirectly drives the tape by transferring power through the capstan to the first belt and may be removably brought into contact with the capstan.

As illustrated, the claimed tape drive system uses a power belt (31) to frictionally engage and drive the cartridge capstan (13). The tape data cartridge (11) is removable from the tape drive and is not part of the claimed invention. The cartridge includes a tape supply roll (17) and a takeup roll (19) with an intermediate tape portion (27) extending around two cartridge tape guides. The tape rolls are driven within the cartridge by an endless loop drive belt (15) trained about the cartridge capstan (13). The drive belt (15) frictionally engages the tape rolls over a substantial arc of their peripheral surfaces. A tensioning belt (25) is trained about the belt guide members (21, 23) for maintaining proper tension in the drive belt (15) and hence in the tape (27). Figure 1 of Newell's patent application is illustrative:

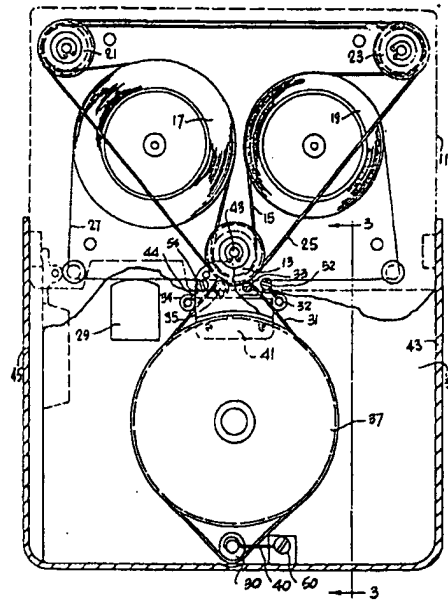


Figure 1

Mr. Newell's tape drive system, characterized as a "belt-to-capstan" drive, differs from the prior art "wheel-to-wheel" or "capstan-to-capstan" drives and other known drives for tape cartridges. The essential difference relates to the external drive means used to transfer power to the cartridge capstan (13) which forms part of tape transfer system within the data cartridge. In a wheel-to-wheel or capstan-to-capstan drive, power is transferred to the cartridge capstan (13) for tape movement by contact with an external drive capstan; the external drive capstan turns the cartridge capstan (13) which moves the cartridge drive belt (15), and in turn drives the tape rolls (17 and 19).

Instead of the capstan-to-capstan power transfer shown in the prior art, the power transfer in appellant's drive system takes place from the external power belt (31) to the cartridge capstan (13). This provides a mechanical advantage of improved power transfer over conventional capstan-to-capstan drives due to the increased surface contact area of the power belt with the capstan. The advantage is proportional to the wrap angle of the power belt (31) on

the capstan (13) and to the coefficient of friction between the belt and the capstan. Newell states that his system has a calculated maximum tape velocity of 75 inches per second, as compared with the 30 inches per second of the prior art capstan drives.

#### Discussion

It is uncontested that Newell's structure is new. Newell states, in the Board's words, that "he is the first to drive a data cartridge of the Von Behren/Newell type (ANSI) standard cassette with a belt."

The Board affirmed the examiner's rejection of claims 16 through 41 on the basis of three reference patents, United States Patent No. 2,288,983 to Weiss, United States Patent No. 3,692,255 to Von Behren, and an earlier patent of Newell, United States Patent No. 4,172,569.

The Newell and Von Behren patents teach conventional capstan-to-capstan drive systems for ANSI type data tape cartridges. The tape is moved from roll to roll in the cartridge by an internal drive belt which is turned by the cartridge capstan. The cartridge capstan is in turn powered by contact with an external drive capstan. Motive power is not directly applied to the tape.

The Weiss patent describes a device for recording and playing information on an endless loop of recording tape. The tape is driven by a tape feeding belt which is trained about two spools that guide the belt adjacent to the surface of a freely spinning roller. The tape passes between the roller and the tape feeding belt, with the belt frictionally engaging the tape. The roller provides a backing surface for the tape, making it possible for the belt to apply pressure to and drive the tape. In short, motive power in the Weiss system is transferred directly from the feeding belt to the tape.

The Board held that Newell had simply combined various elements of known tape drives, and that it would have been obvious to do so because it was "a mere substitution of one conventional tape capstan drive for another". Newell argues, however, that the elements of the prior art are not

simply physically combined and that his indirect power transfer from the power belt through the capstan to the drive belt is not shown or fairly suggested in the prior art.

Newell correctly states that the roller in the Weiss reference does not have a power transfer function. Newell also states, and the Solicitor does not dispute, that his new drive system achieves significantly enhanced power transmission to the tape, as compared with the prior art. Although the Solicitor argues that it is inherent that a belt drive will provide greater surface contact with the cartridge capstan, and thus better power transfer, a retrospective view of inherency is not a substitute for some teaching or suggestion which supports the selection and use of the various elements in the particular claimed combination. *Smithkline Diagnostics v. Helena Laboratories Corp.*, 859 F.2d 878, 886-87, 8 USPQ2d 1468, 1475 (Fed.Cir.1988). It is well established that in deciding that a novel combination would have been obvious, there must be supporting teaching in the prior art. "That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown." *In re Spormann*, 363 F.2d 444, 448, 53 CCPA 1375, 1380, 150 USPQ 449, 452 (1966).

There is no suggestion or motivation in the prior art to combine these elements as combined by Newell, in order to obtain enhanced tape velocity and acceleration. See *In re Laskowski*, 871 F.2d 115, 117, 10 USPQ2d 1397, 1398-99 (Fed.Cir.1989); *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir.1985). The motivation to make a specific structure "is not abstract, but practical, and is always related to the properties or uses one skilled in the art would expect the [structure] to have, if made." *In re Gyu-rik*, 596 F.2d 1012, 1018, 201 USPQ 552, 557 (CCPA 1979). See also *Fromson v. Advance Offset Plate*, 755 F.2d 1549, 1556, 225 USPQ 26, 31 (Fed.Cir.1985) ("The critical inquiry is whether 'there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of

making the combination.'") (Emphasis in original).

In *In re Wright*, 848 F.2d 1216, 6 USPQ2d 1959 (Fed.Cir.1988), we discussed the need, in comparing the differences between the structure and properties taught in the prior art, and those of the applicant's invention, to include consideration of the problem solved by the inventor. "The determination of whether a novel structure is or is not 'obvious' requires cognizance of the properties of that structure and the problem which it solves, viewed in light of the teachings of the prior art." *Id.* at 1219, 6 USPQ2d at 1961-62. See *In re Rothermel*, 276 F.2d 393, 397, 47 CCPA 866, 873, 125 USPQ 328, 332 (1960):

Where the invention for which a patent is sought solves a problem which persisted in the art, we must look to the problem as well as to its solution if we are to properly appraise what was done and to evaluate it against what would be obvi-

ous to one having the ordinary skills of the art.

Applying this precedent to Newell's invention, there is no teaching or suggestion in the prior art that the belt drive of Weiss should be applied to the capstan of an ANSI type of tape cartridge in the manner done by Newell, in order to achieve the significant advantageous property obtained by Newell.

On consideration of all the evidence of record, we conclude that Newell's claims meet the requirements of section 103. The Board's decision to the contrary is

REVERSED.

